

Natural hazards, risk and resilience - Bushfire

State Planning Policy – state interest guidance material

December 2019



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An electronic copy of this report is available on the Department of State Development, Manufacturing, Infrastructure and Planning's website at www.dsdmip.qld.gov.au.

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Using the SPP state interest guidance material

The State Planning Policy (SPP) July 2017 defines the matters of state interest in land use planning and development. State interests in the SPP are expressed through a state interest statement, state interest policies and, where applicable, assessment benchmarks.

This guidance material has been prepared primarily to support the implementation of the SPP and the interpretation of the *Natural hazards, risk and resilience* state interest. Although the SPP broadly applies to a range of activities undertaken by state and local governments, the guidance material is particularly focused on assisting local governments when making or amending a local planning instrument and when applying the assessment benchmarks (to the extent relevant).

The SPP does not prioritise one state interest over another, providing flexibility for decision-makers to respond to specific regional and local circumstances. This allows for the state interests to be considered simultaneously rather than as individual or separate priorities. State interests are to be considered in the context of the guiding principles in the SPP which promote an outcome-focused, integrated, efficient, positive and accountable planning system.

The SPP guidance material is intended to be read in conjunction with the SPP and the relevant state interest. The SPP guidance material is not statutory in its effect and does not contain any new policy not included in the SPP itself. It is not mandatory for local governments to use the guidance material; it is provided to assist with the interpretation and application of the state interest policies and the assessment benchmarks contained in the SPP.



The SPP guidance material is structured as follows:

Understanding the state interest

This section briefly explains why a particular planning matter is a matter of state interest, describes the purpose of the relevant state interest statement and defines the core concepts associated with the state interest.

Integrating the state interest policies

This section provides background and further explanation for each of the state interest policies defined in the SPP. It also provides examples and options regarding how to appropriately integrate each state interest policy into a local planning instrument.

Mapping

This section identifies and explains the mapping layers contained in the SPP Interactive Mapping System (SPP IMS) relevant to a particular state interest. It also clarifies how a local government can locally refine state mapping in certain instances and outlines where online mapping for the state interest can be accessed (if relevant).

Applying assessment benchmarks

In accordance with the Planning Regulation, an assessment manager or referral agency must have regard to the SPP when assessing a development application. For some state interests, there are also specific assessment benchmarks that may need to be used by a local government for development assessment. This section outlines the development applications to which the assessment benchmarks apply and how a development application may demonstrate compliance with these benchmarks, to the extent that these are relevant. The assessment benchmarks contained in this section will apply to assessable development in addition to any assessment benchmarks contained in a local planning instrument, to the extent of any inconsistency.

Example planning scheme provisions

This section provides example planning scheme provisions that a local government may choose to adopt, or to adapt, when making or amending a local planning instrument. It is important to note the example planning scheme provisions provided may only be in relation to a particular aspect of a state interest, rather than addressing all of the particular state interest policy requirements.

Supporting information

This section provides a list of technical resources that a local government may wish to refer to when considering making or amending a planning scheme.

Any queries related to the SPP guidance material or the SPP should be sent to SPP@dsgmip.qld.gov.au.

1.0 Understanding the state interest

State interest statement

The risks associated with natural hazards, including the projected impacts of climate change, are avoided or mitigated to protect people and property and enhance the community's resilience to natural hazards.

1.1 Background

Bushfires can cause extensive social, economic and environmental damage. With the increasing occurrence of days of extreme heat and frequency of severe fire weather, the potential impact of bushfires is of increasing concern in Queensland. An unprecedented 2018 fire season, and more recently the catastrophic bushfires in September 2019, have demonstrated a devastating impact on communities. With climate change predictions indicating a hotter and drier climate for large parts of Queensland, effective land use planning and hazard mitigation to ensure community safety is of paramount importance. The impact of bushfires will vary across the state, depending on the severity of the bushfire, the proximity and exposure of people and property to hazardous vegetation, and the vulnerability of different land uses to bushfire threat. Land use planning plays a key role in ensuring that new development and communities are not placed at undue risk; by adopting hazard avoidance and/or risk mitigation strategies. For example, planning provisions can ensure there is adequate separation between bushfire hazard sources and new or intensified development. Proactive and effective planning for bushfire risk can also help improve community safety and resilience and minimise the burden on emergency management systems and processes.

1.2 Core concepts

Asset protection zone

An asset protection zone is a specified area of land that enables emergency access and operational space for fire-fighting. Within the asset protection zone vegetation is modified and maintained to reduce fuel load and mechanisms of bushfire attack such as flame and radiant heat. The zone may include a combination of elements such as perimeter road, fire trail and working area and open space where vegetation is managed.

Note – The asset protection zone need not be maintained 'fuel free' – sensible landscape design can ensure a balance between landscape design outcomes and minimising the vulnerability to bushfire attack. Refer to the QFES [Bushfire resilient communities](#) document for guidance on landscape design and vegetation management.

Note – The 'asset protection zone' considered as part of a planning development application is different from the siting of a building as part of designing and constructing the building to reduce the risk of ignition from a bushfire, appropriate to the intensity of the bushfire attack on the building and the associated requirements prescribed in AS 3959–2018 Construction of buildings in bushfire prone areas as part of a building development application.

Building envelope

A building envelope is a three-dimensional extent of where a building or associated structure may be built on a site after consideration of appropriate height and setback provisions.

Bushfire prone area

Bushfire prone area is land that is potentially affected by significant bushfires, including vegetation likely to support a significant bushfire; adjacent land that could be subject to impacts from a significant bushfire (i.e. potential impact buffer) and is:

- (a) identified by a local government in a local planning instrument as a bushfire prone area, based on a localised bushfire study, prepared by a suitably qualified person; or
- (b) if the local government has not identified bushfire prone areas in a local planning instrument in accordance with (a) above, shown on the SPP IMS as a bushfire prone area.

Figure 1 below illustrates the different layers of bushfire intensity under the SPP IMS.

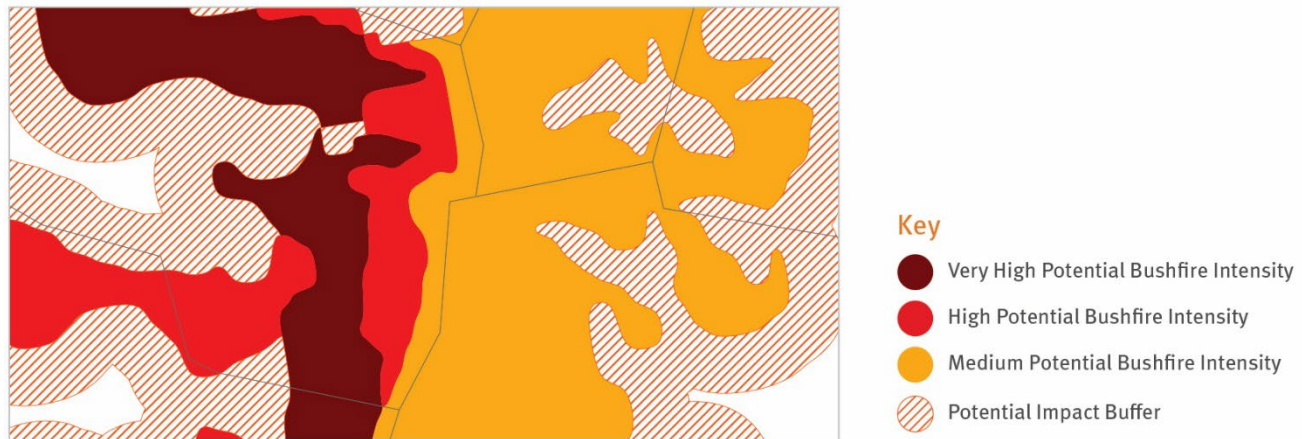


Figure 1: Example bushfire intensity categories

Designated bushfire prone area

A 'designated bushfire prone area' is defined by the Australian Building Codes Board as an area designated under a statutory mechanism as being subject to, or likely to be subject to, bushfires. The declaration typically occurs through State building legislation. In Queensland, section 12 of the Building Regulation 2006 (QLD) identifies that a local government may, in a local planning instrument, designate all or part of its area as a designated bushfire prone area for the Building Code of Australia (BCA) or Queensland development Code (QDC).

1. Note - Building development applications in a 'designated bushfire prone area' are required to meet the mandatory bushfire provisions in the National Construction Code (NCC) series Building Code of Australia (BCA) and in AS 3959–2018 Construction of buildings in bushfire prone areas. Bushfire protection provisions in the NCC apply to Class 1, 2 and 3 residential buildings and accommodation buildings and associated Class 10a structures such as garages, sheds and carports.
2. Note - The NCC performance requirement is that 'a building that is constructed in a 'designated bushfire prone area', must to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the potential for ignition caused by burning embers, radiant heat or flame generated by bushfire; and intensity of the bushfire attack on the building.' The NCC performance requirement is deemed to be met where the building complies with AS 3959–2018. AS 3959–2018 contains provisions which can be used in construction to resist bushfires, to reduce the risk to life and minimise the risk of property loss. These provisions include requirements for burning debris and ember protection, controls on the combustibility of exterior material, and the protection of openings, such as windows and doors.
3. A local planning instrument cannot otherwise deal with building matters covered by AS 3959–2018.

Community infrastructure for essential services

Emergency services are the primary community infrastructure providing disaster management services and support facilities for these services. Other types of community infrastructure also perform different roles during and after a bushfire event. For example, hospitals need to be functional to treat injured people and educational establishments may serve as emergency shelters for evacuated communities.

Development footprint plan

A development footprint plan is a plan that defines an area that may be used for development proposed on a site.

Fire trail and working area

Is an area that is sufficient for access for maintenance and hazard reduction activities by the land manager and safe for a firefighting vehicle and firefighters to undertake fire-fighting and emergency response activities. The trail and working area is located between built infrastructure and neighbouring hazardous vegetation. The trail and working area may comprise part of the separation area between development and hazardous vegetation.

Hazardous material

Hazardous material is referenced in policy 5 and assessment benchmark 6 of the SPP and defined in the SPP Glossary. The discharge of hazardous materials due to damage to properties during a bushfire event can cause significant impacts on the environment and cause additional risks to people and properties and surrounding communities.

In the context of bushfire hazard, hazardous materials are:

- hazardous chemicals that are present at the levels or in the quantities that would constitute the use being a hazardous chemical facility (as defined in the Planning Regulation 2017), and
- hazardous materials that are present in the quantities identified in the Work Health and Safety Regulation, schedule 15.

Note – In developing the planning scheme response, a local government may refine the matters that constitute a hazardous material for the purpose of their bushfire planning provisions.

Hazardous vegetation

The areas mapped either very high, high or medium potential bushfire intensity include potentially hazardous vegetation that could support a significant bushfire. This vegetation is classified and mapped as having a vegetation hazard class.

Note – For more information of the classification of vegetation refer to the QFES *Bushfire resilient communities* document.

Potential impact buffer

The spatial representation of the portions of a bushfire prone area that comprise lands at risk of significant bushfire attack from embers, flames or radiant heat. The potential impact buffer surrounds areas mapped as either very high, high or medium potential bushfire intensity.

Resilience

A system or community's ability to rapidly accommodate and recover from the impacts of hazards, restore essential structures and desired functionality, and adapt to new circumstances.

Vulnerable uses

Certain types of uses and occupants are more vulnerable to the effects of bushfire attack. This vulnerability can be due to factors including social circumstances, communication difficulties, greater potential for health impacts (particularly impacts from smoke), reduced and dependent mobility, or the need for high levels of care. These vulnerable uses are often more difficult to evacuate, and occupants may not be able to support themselves or assist in property protection during a bushfire event.

Note – Under the National Construction Code (NCC) certain buildings that support vulnerable uses, such as schools, hospitals and aged care facilities, are not required to be constructed to withstand bushfire attack (i.e. do not need not comply with AS 3959-2018). Because of the increased level of risk associated with vulnerable uses, such uses should be located outside of bushfire prone areas.

2.0 Integrating the state interest policies

When making or amending a local planning instrument, each local government is required to consider all state interests in the SPP and appropriately integrate into the instrument those which are applicable to their local area.

Not all state interests are relevant to every local government area. In appropriately integrating state interests, a local government must firstly consider the relevance of each state interest and the state interest policies which support it and secondly, balance any competing state interests. It may not be possible to address all policies for a particular state interest.

This balancing of state interests may mean that the local planning instrument prioritises one state interest or state interest policy over another¹.

This guidance focusses on three key elements relevant to the preparation of a local planning instrument – identification of issues / mapping, risk assessment, and planning instrument drafting / response to issues.

To meet the objectives of the SPP for the natural hazards, risk and resilience state interest, a local government is to follow the process of hazard identification (policy 1) and risk assessment (policy 2) to develop planning scheme measures meeting the local circumstances (policies 4–6).

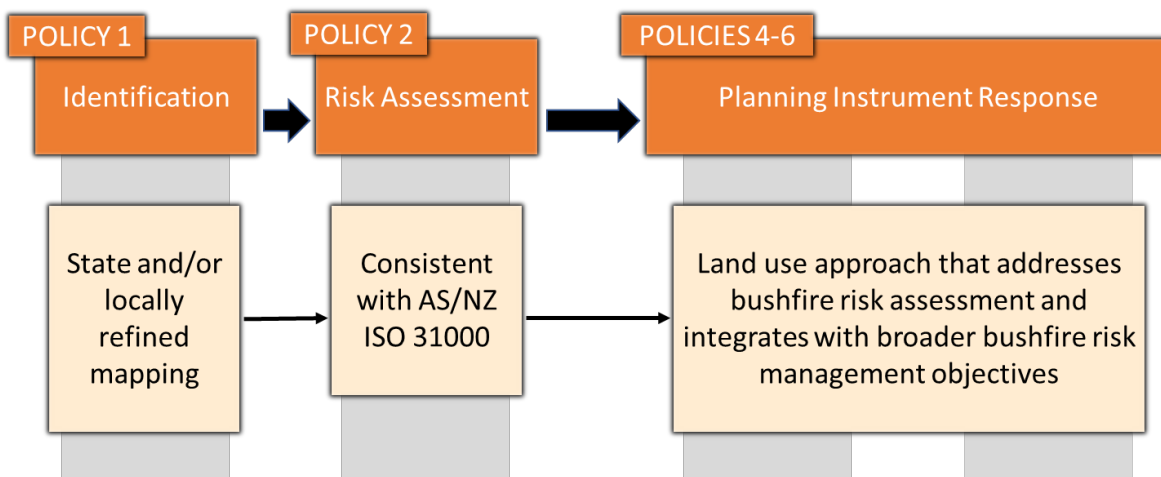


Figure 2 – Process for integration of state interest policies (Natural hazard bushfire prone areas) into local planning instruments

Supporting information

Bushfire hazard considerations are highly technical and complex. It is important that local governments actively interrogate and understand the supporting information identified in this guidance material when considering how to appropriately integrate the state interest policies. The Queensland Fire and Emergency Services (QFES) document, *Bushfire resilient communities*, contains technical information about bushfire hazard assessment and vegetation hazard class assessment and preparing a bushfire management plan.

¹ The outcome of this balancing process is examined by the state as part of the state interest review of a local planning instrument. Ministerial approval of the instrument means the approach taken by the local government in balancing the state interest policies is endorsed by the state.

2.1 State interest policy 1

State interest policy 1

Natural hazard areas are identified, including:

- (a) bushfire prone areas
- (b) flood hazard areas
- (c) landslide hazard areas
- (d) storm tide inundation areas
- (e) erosion prone areas.

How to appropriately integrate the policy

A hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation².

Bushfire hazard in Queensland is mapped³ as bushfire prone areas, and this mapping forms part of the SPP IMS. The mapping identifies the extent and level of the bushfire hazard across the state. Section 4 of this guidance document describes the mapping in more detail.

To identify bushfire prone areas, local governments are advised to use the statewide mapping in the first instance.

Where resources permit, local governments are encouraged to locally verify the statewide mapping, as appropriate to the local circumstances, by:

- applying the statewide mapping methodology, but using local scale inputs (e.g. vegetation and slope), and
- undertaking a detailed study based on the approved methodology outlined in the *Bushfire resilient communities* document.

A local government should clearly identify whether they have applied the statewide mapping or locally verified that mapping.

This local verification in the planning scheme mapping may streamline subsequent development assessment processes, by minimising the potential for development applicants to feel it is necessary to verify the precision, accuracy or currency of the statewide mapping or map input datasets, as part of a bushfire hazard assessment.

This local verification will still result in mapping that identifies medium, high or very high potential bushfire intensity layers and potential impact buffer areas.

A local government may include criteria for when planning scheme provisions applicable to the bushfire overlay do not apply to small patch and corridor locations. The criteria could include:

- Remove patches less than 1 hectares of continuous fuel (i.e. surrounded by either no fuel or non-continuous fuel) that are further than 100 metres from any other continuous fuel greater than two hectares in size.
- Remove narrow corridors and areas of continuous fuel of less than 50 metres in width that are not sufficiently wide to support a fully developed flame front.
- Downgrade isolated patches of less than 0.5 hectares of the same potential bushfire intensity class to low hazard (no longer bushfire prone area).

Steps 1, 2, and 4 in Section 4.2.6 of *Bushfire resilient communities* provide further detailed guidance regarding the process to verify these exclusions.

² United Nations Office for Disaster Risk Reduction (2017)

³ Mapping is in accordance with the process described in 'A new methodology for statewide mapping of bushfire-prone areas in Queensland', Leonard, J and Newnham, G et al (2014)

These exclusions may be of most relevance where a local government has not locally verified SPP IMS mapping. Further information on the process for review of statewide SPP IMS bushfire prone area mapping is contained in the *Bushfire resilient communities* document.

2.2 State interest policy 2

State interest policy 2

A fit-for-purpose risk assessment is undertaken to identify and achieve an acceptable or tolerable level of risk for personal safety and property in natural hazard areas.

What is a fit-for-purpose risk assessment?

A fit-for-purpose risk assessment is required to support the provisions of a planning scheme relating to bushfire risk. The SPP requires that the risk assessment is 'fit-for-purpose' to reflect the diverse circumstances of bushfire risk across all of Queensland's local governments.

Risk assessment is the process of risk identification, analysis and evaluation. A risk assessment is undertaken to understand the likelihood, severity and potential consequences of a bushfire event for existing and proposed communities, property and infrastructure.

The risk assessment helps a local government understand whether their planning intentions are appropriate, given the level of risk posed by the natural hazard. It also helps the local government to identify amendments needed to the policy framework to avoid, mitigate or manage identified risks appropriately.

In understanding the consequences of a potential bushfire event, the risk assessment should consider the exposure, vulnerability and resilience of communities and their assets to a bushfire event as a first step in proposing a planning response.

A risk assessment is a methodical assessment, considering the specific circumstances of the local government area. Preferably, the risk assessment:

- will be consistent with AS/NZS ISO 31000:2018 Risk Management – Principles and Guidelines⁴, and
- is undertaken by a suitably qualified person⁵.

Key matters that should be considered as part of the risk assessment are:

- the characteristics of the bushfire hazard in the area
- the relevant fire and fire weather history of the area
- the population and land uses currently exposed to bushfire hazard
- the anticipated growth of the community and the options for accommodating that growth
- the location of current and proposed community infrastructure and services (also see policy 6)
- the suitability of existing studies to inform the risk assessment
- the potential social, economic and environmental impacts that would result from a bushfire event, and
- local and district disaster management planning, including emergency response and recovery capacities (see policy 5 for details).

Upon the completion of a risk assessment, a local government should have a clear understanding of its 'at-risk' areas, which will assist with developing risk-based plans for land use, including a clear settlement strategy.

Note - Queensland has endorsed the Queensland Emergency Risk Management Framework (QERMF) as the State's approach to emergency and disaster risk management. Assessments conducted under this framework provide key information relevant to an assessment conducted for the above purpose and are held by Disaster Management Groups.

⁴ It is acknowledged that ISO 31000:2018 is a generic standard for a broad range of risk assessments, not just bushfire

⁵ For information on 'suitably qualified person' refer to the QFES *Bushfire resilient communities* document

Is a full risk assessment required for every planning instrument or amendment proposed?

No. The approach provides for flexibility in the scale and content of the risk assessment. In some instances, for example when the fire weather history is significant, a comprehensive risk assessment may be warranted.

However, in areas with limited fire history and few hazard risk factors, a full risk assessment may not be required. This will depend on the scope of the proposed instrument or amendment and whether an assessment has been undertaken previously. Generally, all new planning schemes should include a full risk assessment. However, major or qualified amendments may not need to undertake all the process steps.

The need for, and extent and degree of precision of the risk assessment should be determined at a local government level, informed by local needs, knowledge and issues, including:

- whether the amendment relates to areas affected by very high, high, or medium potential bushfire intensity
- the extent of the bushfire prone area subject to the proposed amended provisions
- the extent of change resulting from the proposed amended provisions applying in bushfire prone areas, and
- the nature of the proposed amended provisions applying in bushfire prone areas.

For example:

- a change to planning provisions that would materially affect most of the bushfire prone area in the planning scheme would warrant assessment, whereas a change where the bushfire prone area only applied to a small number of lots or only portions of lots may not, and
- a change to zoning that results in large scale new development in a bushfire prone area would warrant assessment, whereas a change to refine the range of non-vulnerable land uses envisaged in a zone included in a bushfire prone area may not.

Local government officers should discuss the proposed approach to risk assessment with the local office of the department prior to confirming their approach. QFES can provide advice to local governments early in the plan-making process to scope a risk assessment that is suited to the nature of the proposed scheme amendments. Documentation about the approach taken to the risk assessment, the planning considerations and the basis of the planning responses proposed should be submitted to the department as part of the state interest review material.

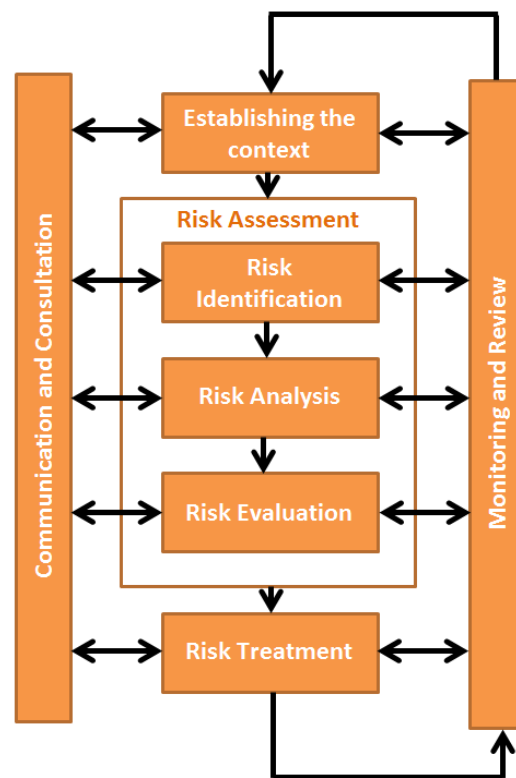


Figure 3 – AS/NZS ISO 31000:2018 risk assessment framework

How to appropriately integrate the policy

The outputs of the risk assessment should inform the drafting of the strategic framework and assessment benchmarks so that there is a clear approach to managing bushfire risk. This should be based on achieving an **acceptable** or **tolerable** level of risk for both existing and new development in bushfire prone areas.

An acceptable risk is a risk that is sufficiently low to require no new treatments or actions to reduce the risk as communities can live with this level of risk without further action.

A tolerable risk is a risk that is low enough to allow the exposure to a natural hazard to continue while at the same time high enough to require new treatments or actions to reduce risk. Communities can live with this level of risk but as much as is reasonably practical should be done to further reduce the risk and may include planning responses for:

- reducing the likelihood of the risk (avoidance), and
- reducing the consequences of the risk (mitigation and hazard management over time).

Note – There may be other responses suitable for implementation via other local government instruments such as local laws or asset management plans.

Note – The difference between hazard and risk is:

1. A hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation⁶.
2. The concept of risk combines an understanding of the likelihood of a hazardous event occurring with an assessment of its impact represented by interactions between hazards, elements at risk and vulnerability⁷.

What constitutes an acceptable or tolerable level of risk will vary between local government areas. If appropriate, community consultation could be undertaken to understand tolerance levels to bushfire risk and identify possible treatment options.

2.3 State interest policy 3

State interest policy 3

Land in an erosion prone natural hazard area is not to be used for urban purposes, unless the land is located in:

- (a) an urban area in a planning scheme; or
- (b) an urban footprint identified in a regional plan.

This policy is not applicable to bushfire hazard considerations.

2.4 State interest policy 4

State interest policy 4

Development in bushfire, flood, landslide, storm tide inundation or erosion prone natural hazard areas:

- (a) avoids the natural hazard area; or
- (b) where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level.

⁶ United Nations Office for Disaster Risk Reduction (2017)

⁷ Geoscience Australia (2007)

How to appropriately integrate the policy

Avoid or mitigate

The SPP aims to 'protect people and property and enhance the community's resilience to natural hazards' by, in the first instance, avoiding the hazard as the highest priority.

However, the SPP recognises that this is not always possible (for example, where the scale of development in existing urban, rural or rural residential areas is already significant). In these cases, mitigation of the risk to an acceptable or tolerable level may be the only realistic policy option. Mitigation may include ensuring the risk does not worsen over time, for example through the management of vegetation which may contribute to the risk.

In determining a planning response to the outputs of the risk assessment, this primarily means:

- **avoiding** growth and/or intensification of development in mapped bushfire prone areas unless appropriate controls are implemented to **mitigate** those risks (for example, through subdivision layout and application of asset protection zones), or
- **removing the hazard** (for example, where clearing is approved).

Preferably, the location or expansion of vulnerable uses, community infrastructure for essential services, and the storage or manufacture of materials that are hazardous in the context of bushfire hazard, in mapped bushfire prone areas is avoided.

Note – The approach to the integration of policy 4 will vary depending on the nature of the hazard i.e. bushfire, flood, landslide storm tide inundation and coastal erosion, reflecting the different policy contexts and frameworks associated with each hazard type. For example, the avoidance approach for bushfire is the converse of the 'feasible alternative' approach to planning for flood hazard (acknowledging the relatively limited scope to avoid the flood hazard, given the level of existing development in flood-affected areas).

Dealing with common policy issues

Valued vegetation

In certain circumstances planning approaches that encourage the clearing of hazardous vegetation to support new development may not be desirable or possible due to the characteristics of the land or values of the vegetation. Examples of circumstances where removal of vegetation to achieve bushfire outcomes may be constrained include areas containing vegetation that has national, state or local environmental, biodiversity or riparian value, that is culturally significant, or that has significant heritage, amenity or aesthetic value. Clearing of vegetation may also be undesirable in areas vulnerable to land degradation or on steep slopes, which are susceptible to erosion and/or landslide risk.

In these circumstances a local government needs to determine how they balance between managing risks and protecting values. In general, limiting development in areas where clearing of valuable vegetation would be required to reduce exposure to bushfires will reduce tension between state interests.

Where clearing is proposed as a bushfire mitigation strategy in these areas, adverse impacts of clearing should be minimised and may be offset (for example in accordance with the *Environmental Offsets Act 2014*).

Note – At development application stage:

1. there may also be statutory requirements which require the protection of wildlife corridors and habitats and limit fuel management, such as areas subject to State Development Assessment Provisions which limit the clearing of vegetation, and
2. 'exempt clearing work' provisions may be applied for a necessary fire management line or to enable the establishment or maintenance of a necessary firebreak to protect infrastructure. However, exemptions under the *Vegetation Management Act 1999* do not override requirements for vegetation protection contained in local laws or other legislation. For more information about exempt clearing work refer to <https://www.qld.gov.au/environment/land/management/vegetation/exemptions>.

When a local government is identifying future corridors or areas for vegetation or rehabilitation, their relationship with bushfire prone areas should also be considered, to minimise tensions that may exist at development assessment stage, particularly where these corridors pass through or adjoin areas intended for future urban development.

Urban and established locations in hazard areas

Within urban zones, planning approaches are primarily focussed on avoiding the location of new or expansion of existing vulnerable uses, community infrastructure for essential services, and the storage or manufacture of materials that are hazardous in the context of bushfire hazard.

Where subdivision of remaining large sites is proposed for urban purposes, these should be considered in a similar manner to the approach to greenfield locations.

In these urban areas the local refinement of mapping by the local government is of value in addressing small isolated pockets of bushfire prone areas that may otherwise be triggering consideration at development application stage. Local verification and amendment of the mapping in accordance with the methodology set out in the QFES *Bushfire resilient communities* document may result in downgrading potential fireline intensity categories of some vegetation pockets.

Greenfield development

Bushfire planning responses such as those described in Table 1 below can have significant impacts on the planning of greenfield areas. Where land is zoned for urban or emerging community purposes, the planning scheme needs to carefully calibrate assessment benchmarks to provide a balance of considerations, including:

- achieving a tolerable level of risk in locations where applying strict mitigation measures would threaten the capacity for developing the land in accordance with the articulated regional and local government settlement pattern and zone intent
- recognising the cost of infrastructure already located in or connected to the area and the need to allow further development to maximise the use of that infrastructure
- acknowledging the staged manner of delivering greenfield development; this could be achieved by accommodating transitional bushfire management areas that recognise the ultimate structure planning intents for an area.

The likely effect of the proposed development on the future extent of bushfire risk areas also needs to be considered in developing planning responses. For example:

- **Scenario 1** – The development site does not contain valuable vegetation and the planning scheme intent is that the site be developed for small lot housing. Based on the extent of clearing and likely built footprint, the site will no longer meet the criteria of being a bushfire prone area in the future if re-assessed in accordance with the methodology used to generate the SPP IMS mapping. As such, planning provisions may only need to focus on subdivision design at the interface with any adjoining bushfire prone areas.
- **Scenario 2** – The development site contains valuable vegetation and to ensure vegetation is protected the planning scheme intent is that the development footprint be limited. This means the site is to be developed for houses within development footprint plans on large lots. Based on the extent of clearing and likely built footprint, the site will remain a bushfire prone area in the future if re-assessed in accordance with the methodology used to generate the SPP IMS mapping. As such, planning provisions will need to mitigate risks to an acceptable or tolerable level in accordance with the suggested assessment benchmarks in Table 1.

Key planning responses

A typical planning process following a risk assessment should be based on the principles of avoidance and mitigation.

To mitigate risks, the nature of the hazard needs to be understood. The main sources of bushfire attack that give rise to loss of life and damage to property and infrastructure that occur at scales that can be addressed in the planning framework are direct flame contact, heat exposure and ember attack.

The building assessment framework is the primary tool for designing and siting buildings to avoid sources of bushfire attack, including mitigating the risk of wind-borne embers resulting in the ignition of homes and mitigating the effect of bushfire radiant heat on structures. The planning framework does not dictate building matters such as separation distance between buildings.

Planning measures that can reduce the impact of these sources of bushfire attack primarily involve:

- A subdivision layout that includes access for firefighters and vehicles between assets and vegetation, to allow for vegetation management and wildfire response. These areas also provide opportunities to establish control lines from which to conduct hazard reduction or back-burning operations.
- A subdivision layout that locates low fuel buffer areas such as roads and managed open spaces to reduce radiant heat exposure and exposure to wind-borne embers for emergency services personnel suppressing fires and protecting property and allow for safer evacuation of people away from fire fronts.
- Landscape design and sustained vegetation management near people to reduce the available fuel load and fuel structure between people and property and hazardous vegetation. This will reduce the level of radiant heat exposure and likelihood of ember attack.

Planning scheme element / issue	Typical response
Mapping	<p>Mapping identifies bushfire prone areas using SPP mapping categories. As a minimum the SPP IMS bushfire layer should be adopted in the planning scheme. This mapping may trigger an overlay code.</p>
Strategic framework	<p>The settlement pattern should avoid allocating growth or more intense forms of development in mapped hazard areas.</p> <p>Strategic outcomes articulated in the scheme should reflect the approach of avoid / mitigate and in particular:</p> <ul style="list-style-type: none"> • recognise and acknowledge the potential risk to human life and property of bushfire in the local government area • minimise / not worsen the impacts of bushfire on existing and new development, through avoiding and otherwise mitigating the risk through neighbourhood layout and management measures • protect essential community infrastructure, and vulnerable uses from the risk / an increase in the risk.
Zoning	<p>Ensure the zoning of all land in the local government area supports the settlement pattern – that is, avoids zoning land for new or more intense development in bushfire hazard areas. Consider where there are constraints to accessibility, for example only one evacuation route.</p> <p>Where mapping shows a bushfire hazard, the land is ideally zoned for uses which typically result in low levels of population and economic investment.</p> <p>The category of development and assessment for each land use should be relative to the level of risk identified through the risk assessment, see policy 2. A lower level of risk should translate into a lower category of assessment.</p> <p>The category of development and assessment may vary throughout Queensland depending on the level of tolerability (as determined by the local government based on the local context) and the information available to make an assessment.</p>
Overlay	<p>One option is to map the bushfire layer as a separate overlay and link the map to an overlay code or use codes, and to categories of development and assessment.</p> <p>In allocating categories of development and assessment, the table of assessment should act to minimise accepted development and make Reconfiguring a Lot (RaL) and Material Change of Use (MCU) development for identified uses subject to code or impact assessment, depending on the level of risk, the scale and vulnerability of the proposed development.</p> <p>Note – As a complementary measure to an overlay for land use planning, a local government may, in a local planning instrument, designate all or part of its area as a designated bushfire prone area for the BCA or QDC.</p>
Assessment benchmarks and requirements	<p>Whether or not an overlay is used, assessment benchmarks are required to enable the assessment of proposed development in bushfire prone areas. The assessment benchmarks work together with higher level strategic framework outcomes to ensure the risk of bushfire affecting proposed new development is mitigated to an acceptable or tolerable level.</p> <p>Assessment benchmarks for bushfire can be included entirely in a bushfire overlay code or in multiple zone codes, or even in local plan codes, depending on the circumstances.</p> <p>As a first step, structure planning can consider the location of the new road network, open spaces, and revegetation and rehabilitation areas, so that the remainder of the development area can be planned to minimise exposure to the bushfire hazard. Consideration should be given to whether sites within the potential impact buffer are separated from areas with a medium, high or very high potential bushfire intensity by a road or by spaces where vegetation is highly managed in perpetuity.</p>

	<p>The assessment benchmarks may include:</p> <ul style="list-style-type: none"> • neighbourhood layout that separates development from hazardous vegetation and that facilitates emergency access and operational space for firefighters • neighbourhood layout that facilitates connections to safe evacuation routes • landscape design and management that do not increase the level of bushfire risk or mechanisms of bushfire attack by avoiding or minimising opportunities for ignition of landscaping features.
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Table 1 – Possible planning responses to state interest policy 4⁸

2.5 State interest policy 5

State interest policy 5

Development in natural hazard areas:

- (a) supports, and does not hinder disaster management capacity and capabilities**
- (b) directly, indirectly and cumulatively avoids an increase in the exposure or severity of the natural hazard and the potential for damage on the site or to other properties**
- (c) avoids risks to public safety and the environment from the location of the storage of hazardous materials and the release of these materials as a result of a natural hazard**
- (d) maintains or enhances the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard.**

How to appropriately integrate the policy

Hazard

A hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation⁹. In the context of bushfires, hazards include: smoke, radiation, hot gases, airborne particles, burning embers, fire-induced winds and flames.

Exposure

Exposure refers to the elements within a given area that have been, or could be, subject to the impact of a particular hazard¹⁰. Exposure is also sometimes referred to as the 'elements at risk' and could include the number and characteristics of the values or assets exposed, where the values or assets could be tangible or intangible aspects of environmental, social, cultural, economic, or political/reputational dimensions.

Exposure has a spatial dimension and is largely a function of land use, development density and proximity to hazardous vegetation identified as bushfire prone areas. It can be calculated by estimating the number of proposed or existing premises within a specified distance from bushland¹¹.

The effects of urbanisation and increasing population growth and density has led to greater demand for and concentration of infrastructure and a higher potential exposure of people and property to bushfire events. Exposure is typically higher at the interface between dense urban areas and natural forested areas.

Combining hazard and exposure ('hazard exposure') provides a spatial measure of the people, premises or infrastructure exposed to a given level of bushfire hazard.

⁸ Refer to the department's *Guidance for drafting a local planning scheme* for general advice on drafting a planning scheme. The advice in this document is based on the structure of most existing planning schemes prepared under the repealed *Sustainable Planning Act 2009*

⁹ United Nations Office for Disaster Risk Reduction (2017).

¹⁰ Australian Emergency Management Institute (2015)

¹¹ Risk Frontiers (2011 and Bianchi, R., J. Leonard, et al. (2014)

Vulnerability

Vulnerabilities are the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard¹².

Land use planning measures for new development can reduce community susceptibility by ensuring that premises, infrastructure and services are located to ensure high levels of physical and social resilience during and after a significant bushfire event.

Disaster management capacity

Safe access to property is necessary for evacuation of occupants as well as for emergency services. Well-designed and located access to and from sites which are at risk of bushfire attack reduces vulnerability. Planning measures primarily involve:

- providing easy and safe movement away from any encroaching bushfire for both occupants and emergency services
- providing emergency services with easy access to a safe working area close to dwellings and water supply to suppress fires
- allowing for alternative safe access and evacuation routes should access in one direction be blocked in the event of a bushfire, and
- providing opportunities to establish control lines from which to conduct hazard reduction or back-burning operations.

Table 2 below provides further details regarding possible planning responses in the context of state interest policy 5.

Key issues contributing to risk	Possible response
Effect of development on emergency response capabilities	Include provisions in RaL and other codes for: <ul style="list-style-type: none"> • safe access and egress routes within and from each lot • asset protection zones between development and hazardous vegetation in urban areas • fire trail and working areas to facilitate fuel load management¹³ • water supply in both reticulated and non-reticulated areas.
Locating or expanding vulnerable uses in hazard areas	Specify the use terms that constitute vulnerable uses for the purposes of the bushfire planning provisions. This could include childcare centre, community care centre, detention facility, educational establishment, hospital, residential care facility, retirement facility, and other like uses. <p>Articulate the policy position on the location of vulnerable uses within bushfire prone areas. To reduce community exposure to and vulnerability to bushfire attack and enhance community resilience, the location of vulnerable uses in bushfire prone areas should be avoided.</p> <p>However, location of vulnerable uses within a bushfire prone area may be justifiable where there is an overriding need in the public interest for the new or expanded service the development provides and there is no suitable alternative location.</p> <p>Ensure these uses (and expansion of them) are code or impact assessable where the use is within a bushfire prone area.</p>

¹² United Nations Office for Disaster Risk Reduction (2015)

¹³This may involve the reservation of fire trails as roads dedicated to the local government or provision of an easements in favour of Council and QFES but maintained by the Grantor.

Potential for development to increase the likelihood or extent of the bushfire	<p>Include provisions in RaL codes that new subdivision design minimises the interface with bushfire prone areas.</p> <p>Include provisions in codes that maintain opportunities for emergency access and operational space for firefighters before the arrival of a bushfire, for example via identification of separation area between development and hazardous vegetation via subdivision layout and, for large lots, the identification of development footprint plans.</p>
Planning scheme provisions designating areas for revegetation and rehabilitation, that may result in an expansion of a bushfire prone area or increase in bushfire intensity levels	<p>Include provisions in codes for the location, dimensions and configuration of revegetation and rehabilitation areas to ensure they do not increase the exposure or severity of the hazard in a manner that creates an unacceptable level of risk.</p> <p>Include provisions in codes for the location and form of revegetation and rehabilitation areas to ensure they do not result in an unacceptable level of risk and would not comprise a higher bushfire intensity level in the future if assessed in accordance with the methodology used to generate the SPP IMS mapping.</p> <p>Note – Where relating to the possible expansion of a bushfire prone area (rather than the increase in bushfire intensity levels) these provisions will not be triggered by the bushfire mapping or be located within a bushfire overlay code as they will be a consideration in areas that are currently not bushfire prone. Rather the provisions will sit with the provisions that required the revegetation or rehabilitation, such as a waterway or biodiversity code.</p>
Landscape design that may create additional bushfire prone areas or exacerbate the impacts of a bushfire	<p>Include provisions in codes describing acceptable protective landscape treatments within any asset protection zones.</p>
Manufacture and storage of hazardous materials	<p>Identify what constitutes hazardous materials in the context of bushfire hazard.</p> <p>Articulate the policy position on the manufacture or storage of materials that may exacerbate the risks from bushfire when located within bushfire prone areas.</p> <p>To avoid risks to public safety and the environment from the location of hazardous materials and the release of these materials, the storage or manufacture of these hazardous materials should be avoided within a bushfire prone area.</p> <p>Ensure the manufacture or storage of these materials is code or impact assessable and linked to assessment benchmarks for siting of facilities involving the manufacture or storage of hazardous materials, that will mitigate risks and impacts during and after a bushfire event to an acceptable or tolerable level.</p>
Growth of vegetation that increases risk of bushfire hazard above acceptable or tolerable levels	<p>Include provisions in codes for bushfire management plans for maintenance of any asset protection zones, including through vegetation and landscape management to ensure the fuel load can be practically maintained at or below an acceptable level.</p>

Table 2 – Possible planning responses to state interest policy 5¹⁴

2.6 State interest policy 6

State interest policy 6

Community infrastructure is located and designed to maintain the required level of functionality during and immediately after a natural hazard event.

¹⁴ Refer to the department’s *Guidance for drafting a local planning scheme* for general advice on drafting a planning scheme. The advice in this document is based on the structure of most existing planning schemes prepared under the repealed *Sustainable Planning Act 2009*

The term 'community infrastructure' is not defined in the SPP but in the context of bushfire hazard is generally taken to mean infrastructure for essential services before, during or after a bushfire event and is described in the core concepts.

There is a relationship between the planning response for this infrastructure and the planning response for vulnerable uses contained in policy 5, whereby uses such as hospitals and schools may comprise both vulnerable uses and also perform a role as essential services before, during or after a bushfire event.

How to appropriately integrate the policy

Using the completed risk assessment, the local government should ensure scheme provisions protect the functionality of community infrastructure for essential services during and immediately after a bushfire event.

The planning scheme should:

- specify the use terms that constitute community infrastructure for essential services in the local context. This could include *educational establishment*, *emergency services* and *hospital*, for example.
Note – Items of essential community infrastructure may also serve to accommodate vulnerable uses like educational establishments and hospitals. The level of risk for these items is also determined through the risk assessment process required by policy 2 and planning provisions applied under policy 4.
- identify the function this infrastructure serves during or immediately after a bushfire event.

In most instances, development of new community infrastructure of any kind should be avoided within bushfire prone areas. In the first instance this can be considered in policy 2, for example by avoiding the allocation of zones such as the community facilities zone to land within a bushfire prone area.

However, community infrastructure may be justified where there is an overriding need in the public interest for the new or expanded service and there is no suitable alternative location. In this situation, the planning scheme will need to include provisions to mitigate the risk to an acceptable or tolerable level, including demonstrating that the infrastructure can function effectively during and immediately after a bushfire event and site planning can appropriately mitigate the risk.

2.7 State interest policy 7

State interest policy 7

Coastal protection work in an erosion prone area is undertaken only as a last resort where coastal erosion or inundation presents an imminent threat to public safety or existing buildings and structures, and all of the following apply:

- (a) The building or structure cannot reasonably be relocated or abandoned.**
- (b) Any erosion control structure is located as far landward as practicable and on the lot containing the property to the maximum extent reasonable.**
- (c) Any increase in coastal hazard risk for adjacent areas from the coastal protection work is mitigated.**

This policy is not applicable to bushfire hazard considerations.

2.8 State interest policy 8

State interest policy 8

Erosion prone areas within a coastal management district:

Development does not occur unless the development cannot feasibly be located elsewhere and is:

- (a) coastal-dependent development; or
- (b) temporary, readily relocatable or able to be abandoned development; or
- (c) essential community infrastructure; or
- (d) minor development of an existing permanent building or structure that cannot be relocated or abandoned.

This policy is not applicable to bushfire hazard considerations.

2.9 State interest policy 9

State interest policy 9

Erosion prone areas within a coastal management district:

Development permitted in policy 8 above, mitigates the risks to people and property to an acceptable or tolerable level.

This policy is not applicable to bushfire hazard considerations.

3.0 Mapping

To support the SPP, wherever possible and to the extent relevant, matters of state interest are spatially represented as layers in the SPP Interactive Mapping System (SPP IMS). The mapping is intended to help local government, the community and industry understand and interpret where and how state interest policies and assessment benchmarks included in the SPP apply.

Several mapping layers contained in the SPP IMS are prepared by entities other than the Department of State Development, Manufacturing, Infrastructure and Planning and may serve an additional purpose outside the Queensland planning system. Where relevant, the SPP IMS represents the single point of truth for the spatial representation of the state interests expressed in the SPP.

Appendix 1 of the SPP identifies three categories of mapping layers provided or referred to in the SPP IMS. The categories are intended to be used in one of the following ways:

- Category 1 – State mapping layers that must be appropriately integrated unchanged into a local planning instrument.
- Category 2 – State mapping layers that must be appropriately integrated and can be locally refined by a local government in a local planning instrument (subject to approval by the Planning Minister), in a way that achieves the state interest policy.
- Category 3 – State mapping layers that are provided for local government information purposes only and may be included in a planning scheme for the advice of the community, at the discretion of the local government.

The SPP IMS is located on the department’s planning website: <https://planning.dsdmip.qld.gov.au/maps>. Any queries related to the SPP mapping should be sent to mappingenquiries@dsdmip.qld.gov.au.

Bushfire prone area	
Purpose	<p>Identification of bushfire prone areas for use by local governments to inform the preparation of local planning instruments and ongoing interpretation of planning provisions for development assessment purposes.</p> <p>The mapping divides bushfire prone areas into three potential bushfire intensity classes – very high, high and medium as well as land within a surrounding potential impact buffer.</p>
Mapping category	SPP Category 2 – State mapping layers that must be appropriately integrated and can be locally refined by a local government in a local planning instrument (subject to approval by the Planning Minister), in a way that achieves the state interest policy.
Data custodian	Queensland Fire and Emergency Services (QFES)
Head of power	State Planning Policy
Methodology	<p>The statewide mapping of bushfire prone areas includes the latest information on the extent of remnant and non-remnant bushfire prone vegetation, and improved estimates of potential fuel loads for different regional ecosystems.</p> <p>The statewide bushfire prone area mapping has also incorporated climate change factors in the statewide estimates of fire weather severity to reflect the projected climate in 2050. <i>The Intergovernmental Panel on Climate Change (IPCC) projections</i> (Leonard et al., 2014) have been used to create these estimates.</p> <p>For information regarding the methodology for statewide mapping of bushfire prone areas in Queensland refer to <i>A New Methodology for Statewide Mapping of Bushfire prone Areas in Queensland</i> which is available at Queensland Government Data at: https://data.qld.gov.au/dataset/bushfire-hazard-area-bushfire-prone-area-mapping-methodology-for-queensland/resource/fc6ec388-d408-4c48-8d0a-2085057d8652</p>

4.0 Applying assessment benchmarks

For the purposes of development assessment, the SPP applies as a 'matter to have regard to' in accordance with the Planning Regulation 2017. The SPP also contains specific assessment benchmarks for the *Natural hazards, risk and resilience* state interest.

The assessment benchmarks outlined in this section apply to development to the extent that the development is assessable against a planning scheme and only to the extent that the planning scheme is inconsistent with the SPP.

This section provides guidance for the assessment of applications triggering this state interest, where the relevant planning scheme has not been signed off as consistent with the SPP. It also shows how a development application may demonstrate compliance with these requirements.

Note – The assessment manager should take into account the existing situation in the application of the assessment benchmarks to development applications in mapped bushfire prone areas, for example consider:

1. Whether mapping contains inconsistencies that are yet to be corrected through state or local government verification, for example potential bushfire intensity areas over non-vegetated areas including waterways, roads, footpaths, buildings and rocky outcrops; or
2. Where mapping does not reflect the most up to date situation, for example areas have been cleared as part of earlier approvals.

Applicable development

A development application for a material change of use, reconfiguration of a lot or operational works on premises in any of the following:

- (1) bushfire prone areas
- (2) flood hazard areas
- (3) landslide hazard areas
- (4) storm tide inundation areas
- (5) erosion prone area.

4.1 Assessment benchmark 1

Assessment benchmark 1

Erosion prone areas within a coastal management district:

Development does not occur in an erosion prone area within a coastal management district unless the development cannot feasibly be located elsewhere and is:

- (a) coastal-dependent development; or
- (b) temporary, readily relocatable or able to be abandoned development; or
- (c) essential community infrastructure; or
- (d) minor redevelopment of an existing permanent building or structure that cannot be relocated or abandoned.

This assessment benchmark is not applicable to bushfire hazard considerations.

4.2 Assessment benchmark 2

Assessment benchmark 2

Erosion prone areas within a coastal management district:

Development permitted in (1) above, mitigates the risks to people and property to an acceptable or tolerable level.

This assessment benchmark is not applicable to bushfire hazard considerations.

4.3 Assessment benchmark 3

Assessment benchmark 3

Bushfire, flood, landslide, storm tide inundation, and erosion prone areas outside the coastal management district:

Development other than that assessed against (1) above, avoids natural hazard areas, or where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level.

How a development application may demonstrate compliance with the assessment benchmarks

Where reconfiguring a lot creating more than 20 lots

1. The subdivision layout minimises the length of the development perimeter and number of lots exposed to hazardous vegetation.
2. The subdivision layout establishes safe evacuation routes by:
 - a. avoiding the creation of bottleneck points in the movement network within the development, and
 - b. ensuring roads have sufficient capacity for the evacuating population, and
 - c. directing occupants away from rather than towards or through areas with a greater potential bushfire intensity and minimising the length of route through bushfire prone areas, and
 - d. establishing direct access to a safe assembly/evacuation area, where in an isolated location.

For development in a bushfire prone area involving vulnerable uses and community infrastructure for essential services as identified in Table 3

1. Vulnerable uses are not established or intensified within the bushfire prone area unless:
 - a. there is an overriding need in the public interest for the new or expanded service the development provides
 - b. there are no other suitable alternative locations within the required service catchment, and
 - c. site planning can appropriately mitigate the risk (for example, siting ovals for an educational establishment between the hazardous vegetation and structures).
2. Community infrastructure providing essential services are not established within the bushfire prone area unless:
 - a. there is an overriding need in the public interest for the new or expanded service the development provides
 - b. there are no other suitable alternative locations that can deliver the required level of service and meet response times during and immediately after a bushfire event, and
 - c. it is demonstrated the infrastructure can function effectively during and immediately after a bushfire event.

Group	Uses
Vulnerable uses	<i>childcare centre, community care centre, detention facility, educational establishment, hospital, nature-based tourism, relocatable home park, rooming accommodation, residential care facility, resort complex, retirement facility, tourist park</i>
Community infrastructure for essential services	<i>educational establishment, emergency services, hospital</i>

Table 3 – Vulnerable uses and community infrastructure for essential services

4.4 Assessment benchmark 4

Assessment benchmark 4

All natural hazard areas:

Development supports, and does not hinder, disaster management response or recovery capacity or capabilities.

How a development application may demonstrate compliance with the assessment benchmarks

Assessable development

Development contributes to an effective and efficient emergency response and recovery capabilities. In the first instance, this can be achieved by new or expanded community infrastructure that is providing essential services (emergency services, hospital and educational establishment) not being in a bushfire prone area, as addressed in assessment benchmark 3.

To ensure emergency services can respond effectively, development is located within a reticulated water supply area or includes a dedicated static water supply that is available solely for fire-fighting purposes and can be accessed by fire-fighting vehicles¹⁵.

Where reconfiguring a lot creating lots of greater than 2000 square metres

To ensure emergency access and operational space for firefighters, include a development footprint plan that is separated from the closest edge of the adjacent mapped medium, high or very high potential bushfire intensity area by a distance that achieves a radiant heat flux level of 29 kilowatt per square metre or less.

To facilitate safe evacuation during a bushfire event, include a development footprint plan that is located within 60 metres of the street frontage and sited to enable a route between the development footprint plan and the street frontage with a gradient that does not exceed of 12.5 per cent.

Where reconfiguring a lot creating lots of 2000 square metres or less

To ensure emergency access and operational space for firefighters, the subdivision layout results in lots that are sited so that they are separated from the closest edge to the adjacent medium, high or very high potential bushfire intensity area by a distance that achieves a radiant heat flux level of 29 kilowatt per square metre or less at:

1. The building envelope, if identified at RaL stage, or
2. Where a building envelope is not identified, at all the lot boundaries.

¹⁵ Information regarding appropriate static water supply can be found in the *Bushfire resilient communities* document

Where reconfiguring a lot creating more than 20 lots where the subdivision contains a reticulated water supply

To ensure safe access and egress for urban fire-fighting vehicles, the subdivision layout:

1. Includes a two-lane sealed perimeter road clear of hazardous vegetation separating lot boundaries from adjacent medium, high or very high potential bushfire intensity areas and that is connected to the wider public road network at both ends and at intervals of no more than 200 metres, or
2. Locates lots greater than 2000 square metres at the interface with adjacent mapped medium, high or very high potential bushfire intensity area.

The road network and fire hydrants are designed and installed in accordance with:

1. *Fire Hydrant and Vehicle Access Guidelines for residential, commercial and industrial lots*, Queensland Fire and Emergency Services, 2015, unless otherwise specified by the relevant water entity; and
2. *The Road Planning and Design Manual 2nd edition*, Department of Transport and Main Roads, 2013.

Note: when relevant, the superseding versions will apply.

Where reconfiguring a lot creating additional lots for the purpose of residential development and a reticulated water supply is not provided

To ensure safe access and egress and operational space for rural fire-fighting vehicles, a fire trail and working area is provided that separates the new residential lot or development footprint plans from adjacent mapped medium, high or very high potential bushfire intensity areas (refer diagram below) and is designed and constructed in accordance with the design parameters in Table 4.

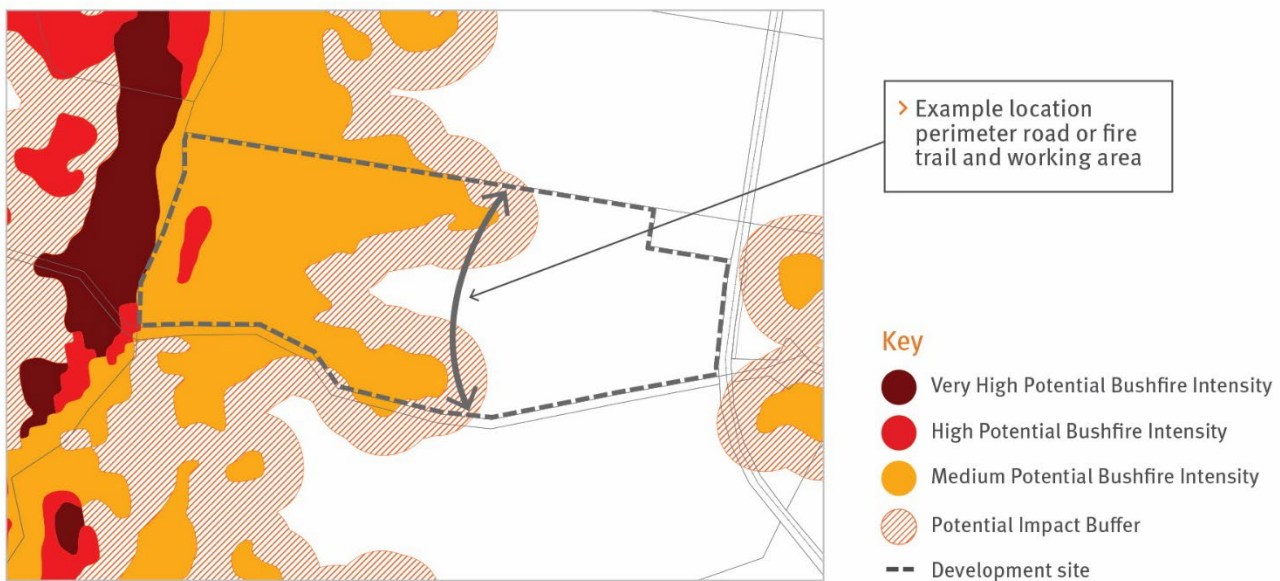


Figure 4 – Siting of fire trail and working area

Parameter	Provisions
Width	<p>Contains a width of at least 20 metres including:</p> <ol style="list-style-type: none"> 1. A trafficable area (cleared and formed): <ol style="list-style-type: none"> a. with a minimum width of 4 metres that can accommodate a rural firefighting vehicle b. with no less than 4.8 metres vertical clearance from canopy vegetation c. with no adjacent inhibiting embankments or retaining walls 2. A working area each side of the trafficable area: <ol style="list-style-type: none"> a. with a minimum width of 3 metres each side b. cleared of all flammable vegetation greater than 0.1 metre in height 3. The balance (i.e. 10 metres width) managed vegetation area: <ol style="list-style-type: none"> a. sited to separate the trafficable area from adjacent mapped medium, high or very high potential bushfire intensity areas managed vegetation b. comprising managed vegetation clear of major surface hazards.
Access	<p>Access is granted in favour of the local government and Queensland Fire and Emergency Services</p> <p>Note – This access is commonly granted in the form of an easement that is to be maintained by the grantor.</p>
Egress	<p>Contains trafficable vehicle routes in to low hazard areas, every 200 metres</p>

Table 4 – Fire trail and working area design parameters

4.5 Assessment benchmark 5

Assessment benchmark 5

All natural hazard areas:

Development directly, indirectly and cumulatively avoids an increase in the severity of the natural hazard and the potential for damage on the site or to other properties.

How a development application may demonstrate compliance with the assessment benchmarks

Assessable material change of use

Site layout places the landscape and open spaces within the site between premises and adjacent mapped medium, high or very high potential bushfire intensity areas. This landscaping and open space comprises protective landscape treatments that:

1. Comprise only low threat vegetation, including grassland managed in a minimal fuel condition¹⁶, maintained lawns, golf courses and cultivated gardens; or
2. Are designed to ensure a potential available fuel load is maintained at less than 8 tonnes/hectare in aggregate and with a fuel structure that remains discontinuous.

Note – The landscape or open space may be located within the mapped medium, high and very high intensity areas to create a separation between the development and the balance of the bushfire prone area.

Where reconfiguring a lot

¹⁶ Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres

Subdivision design avoids locating lots (or for lots greater than 2000 square metres, avoids locating the development footprint plan) that are within bushfire prone areas and on ridgelines, saddles and crests where slopes exceed 15 per cent.

Note – Roads and parks may be located in these areas.

Where involving a requirement for revegetation or rehabilitation within bushfire prone areas

Required revegetation or rehabilitation is located outside of any asset protection zone or maintains a potential available fuel load which is less than 8 tonnes/hectare in aggregate and fuel structure which is discontinuous.

Revegetation or rehabilitation of areas located within mapped areas with a medium, high or very high potential bushfire intensity, revegetate and rehabilitate in a manner that does not increase the existing fuel load.

Revegetation or rehabilitation of areas located within the mapped potential impact buffer area, revegetate and rehabilitate in a manner that maintains or reduces the existing fuel load.

Note – The preparation of a vegetation management plan undertaken in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this assessment benchmark.

Where involving a requirement for revegetation or rehabilitation outside of bushfire prone areas

1. Revegetation or rehabilitation areas contain patches of less than one ha of continuous fuel (i.e. surrounded by either no fuel or non-continuous fuel) and are further than 100 metres from the interface with mapped medium, high or very high potential bushfire intensity patches greater than two hectares in size. Vegetation corridors in these areas with continuous fuel, should be less than 50 metres in width and isolated patches of continuous fuel, should be less than 0.5 hectare.

Note - Steps 1, 2, and 4 in Section 4.2.6 of the QFES *Bushfire resilient communities* document provide further detailed guidance regarding the patch and corridor methodology that has been adapted to inform this benchmark. Revegetation or rehabilitation in this manner does not create an additional area that would meet the criteria of being a bushfire prone area in the future if assessed in accordance with the methodology used to generate the SPP IMS mapping.

OR

3. Where the dimensions, configuration and location of revegetation or rehabilitation areas does not comply with 1. (i.e would create an area that would meet the criteria of being a bushfire prone area in the future if assessed in accordance with the methodology used to generate the SPP IMS mapping), the revegetation or rehabilitation areas are designed and managed to achieve and maintain a potential available fuel load which is less than eight tonnes/hectare in aggregate, and fuel structure which is discontinuous.

Note – The preparation of a vegetation management plan in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this assessment benchmark.

4.6 Assessment benchmark 6

Assessment benchmark 6

All natural hazard areas:

Risks to public safety and the environment from the location of hazardous materials and the release of these materials as a result of a natural hazard are avoided.

How a development application may demonstrate compliance with the assessment benchmarks

Assessable material change of use

In the first instance, development does not involve the storage or manufacture of materials that are hazardous in the context of bushfire hazard within a bushfire prone area.

Where the storage or manufacture of hazardous materials is located within a bushfire prone area, development avoids or mitigates the risks to public safety and the environment to an acceptable or tolerable level.

Note – The types of materials that may constitute hazardous materials in the context of bushfire hazard are described in the core concepts.

Note – In addition to the requirements of this code the *Work Health and Safety Act 2011* and associated Regulation and Guidelines, the *Environmental Protection Act 1994* and the relevant building assessment provisions under the *Building Act 1975* contain requirements for the manufacture and storage of hazardous substances. Information is provided by Business Queensland on the requirements for storing and transporting hazardous chemicals, available at: www.business.qld.gov.au/running-business/protecting-business/risk-management/hazardous-chemicals/storing-transporting.

4.7 Assessment benchmark 7

Assessment benchmark 7

All natural hazard areas:

The natural processes and the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard are maintained or enhanced.

How a development application may demonstrate compliance with the assessment benchmarks

Where a requirement for an asset protection zone (or similar) exists

Landscaping treatments comprise only low threat vegetation, including grassland managed in a minimal fuel condition¹⁷, maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks.

OR

Landscaping management maintains a potential available fuel load which is less than eight tonnes/hectare in aggregate, and fuel structure which is discontinuous.

Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this assessment benchmark.

OR

Development includes a bushfire management plan for the maintenance of any identified asset protection zone, including landscape design and ongoing vegetation management.

¹⁷ Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres

5.0 Example planning scheme provisions

Example planning scheme provisions for the *Natural hazards, risk and resilience* state interest have been prepared which a local government may choose to adopt or otherwise adapt, when making or amending a planning scheme.

The example planning scheme provisions should not be seen as the only way to reflect the *Natural hazards, risk and resilience* state interest appropriately.

Where a local government seeks to adopt the example planning scheme provisions, variations will be required to reflect the local circumstances, opportunities and aspirations of each local government area.

Note - Where a local government has designated all or part of its area as a designated bushfire prone area, the provisions of the BCA or QDC that apply to a designated bushfire prone area apply for any building assessment work that relates to that area in conjunction with any planning provisions. It should be noted that a local planning instrument must not include any provisions about building work to the extent the building work is regulated under the building assessment provisions, unless allowed under the *Building Act 1975*. Building development applications in a 'designated bushfire prone area' are required to meet the mandatory bushfire provisions in the National Construction Code (NCC) series Building Code of Australia (BCA) and in AS 3959–2018 Construction of buildings in bushfire prone areas. Bushfire protection provisions in the NCC apply to Class 1, 2 and 3 residential buildings and accommodation buildings and associated Class 10a structures such as garages, sheds and carports.

5.1 Example category of development

Development	Category of assessment	Assessment benchmark
<ol style="list-style-type: none"> 1. Vulnerable uses, community infrastructure providing essential services and the storage or manufacture of materials that are hazardous in the context of bushfire (as defined in table 7). 2. Reconfiguring a lot where creating additional lots. 3. Material changes of use for industry or commercial purposes (where involving new premises or a substantive increase in development footprint). 4. Multiple dwellings, short-term accommodation, non-resident workforce accommodation and rural workers' accommodation involving new premises or a substantive increase in development footprint. 	Code or impact assessable	Bushfire overlay code

5.2 Example bushfire overlay code

Application

This code applies to development:

1. Within the bushfire prone area as identified on the overlay maps within schedule 2 (mapping), and
2. Where the bushfire prone area overlay code is identified in the assessment benchmark column in the table of assessment.

Purpose

The purpose of the bushfire prone area overlay code is to ensure that risk to life, property, and the environment as a result of bushfire is mitigated to an acceptable or tolerable level. The purpose of the code will be achieved through the following overall outcomes:

1. Development is laid out and located to minimise the exposure and vulnerability of people and property at risk from bushfires.
2. Development contributes to effective and efficient emergency response and recovery capabilities.
3. Rehabilitation, revegetation and landscaping does not increase the risk to people or property.
4. Development only establishes or intensifies vulnerable uses within the bushfire prone area where no other option exists to provide the necessary level of service.

5. Development only establishes or intensifies community infrastructure providing essential services within the bushfire prone area where necessary to provide an adequate level of service to the existing and projected population.
6. Development avoids or mitigates the risk from the manufacture or storage of materials that are hazardous in the context of bushfire.

Note – It is recognised there may be circumstances where flexibility in the application of the code to development applications in mapped bushfire prone areas may be appropriate, for example:

1. Where mapping contains inconsistencies that are yet to be corrected through state or local government verification, for example potential bushfire intensity areas over roads or fully developed areas; or
2. Where mapping does not reflect the most up to date situation, for example areas have been cleared as part of earlier approvals.

Table of assessment

Performance outcomes (PO)	Acceptable outcomes (AO)
Section A Reconfiguring a lot (RaL) – where creating lots of more than 2,000 square metres	
<p>PO1</p> <p>The subdivision layout:</p> <ol style="list-style-type: none"> (a) enables future buildings to be located away from slopes and land forms that expose people or property to an intolerable risk to life or property; and (b) facilitates emergency access and operational space for firefighters in a reduced fuel area between future buildings and structures and hazardous vegetation, that reduce risk to an acceptable or tolerable level. <p>Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.</p>	<p>AO1.1</p> <p>A development footprint plan is identified for each lot that avoids ridgelines, saddles and crests where slopes exceed 15 per cent.</p> <p>AO1.2</p> <p>A development footprint plan is identified for each lot that is separated from the closest edge to the adjacent mapped medium, high or very high potential bushfire intensity area by:</p> <ol style="list-style-type: none"> (a) a distance that is no closer than the distances specified in Table 5 at all development footprint plan boundaries; or (b) a distance that achieves a radiant heat flux level of 29 kW/m² or less at all development footprint plan boundaries. <p>Note – This separation area is often termed an asset protection zone.</p> <p>Note – The radiant heat flux levels can be established by undertaking a bushfire hazard assessment in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document.</p>
<p>PO2</p> <p>The subdivision layout enables:</p> <ol style="list-style-type: none"> (a) future buildings to be located as close as possible to property entrances to facilitate safe evacuation during a bushfire event; and (b) future site access to be located and designed to allow safe evacuation of the site by occupants and maintain access by emergency services under critical event conditions. 	<p>AO2</p> <p>A development footprint plan is identified for each lot that:</p> <ol style="list-style-type: none"> (a) is located within 60 metres of the street frontage; and (b) sited to enable a route between the development footprint plan and the street frontage with a gradient that does not exceed of 12.5 per cent.
Section B Reconfiguring a lot (RaL) – where creating lots of 2,000 square metres or less	
<p>PO3</p> <p>The subdivision layout:</p> <ol style="list-style-type: none"> (a) avoids creating lots on slopes and land forms that expose people or property to an intolerable risk to life or property; and (b) facilitates emergency access and operational space for firefighters in a reduced fuel area between future 	<p>AO3.1</p> <p>The subdivision layout results in lots that are sited so that they are separated from the closest edge to the adjacent mapped medium, high or very high potential bushfire intensity area by:</p> <ol style="list-style-type: none"> (a) a distance that is no closer than the distances specified in Table 5 at all lot boundaries; or

<p>buildings and structures and hazardous vegetation, that reduce risk to an acceptable or tolerable level.</p> <p>Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment, in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.</p>	<p>(b) a distance that achieves a radiant heat flux level of 29 kW/m² or less:</p> <ul style="list-style-type: none"> (i) at the building envelope, if identified at RaL stage; or (ii) where a building envelope is not identified, at all lot boundaries. <p>Note – This separation area is often termed an asset protection zone.</p> <p>Note – The radiant heat flux levels can be established by undertaking a bushfire hazard assessment in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document.</p> <p>Note – For staged developments, temporary separation areas may be absorbed as part of subsequent stages.</p> <p>Note – Existing cleared areas external to the site may only be used in calculating necessary separation where tenure ensures that the land will remain cleared of hazardous vegetation (for example the land is a road, watercourse or highly managed park in public ownership).</p> <p>AO3.2</p> <p>The subdivision layout does not create lots that are within bushfire prone areas and on ridgelines, saddles and crests where slopes exceed 15 per cent (roads and parks may be located in these areas).</p>
<p>Section C Reconfiguring a lot (RaL) – where creating more than 20 lots</p>	
<p>PO4</p> <p>The subdivision layout is designed to minimise the length of the development perimeter and number of lots exposed to hazardous vegetation.</p> <p>Note – For example, avoid finger-like subdivision patterns or substantive vegetated corridors between lots.</p>	<p>AO4</p> <p>No acceptable outcome is prescribed.</p>
<p>PO5</p> <p>The subdivision layout provides for adequate access and egress and safe evacuation routes, to achieve an acceptable or tolerable risk to people.</p>	<p>AO5.1</p> <p>The subdivision layout:</p> <ul style="list-style-type: none"> (a) avoids the creation of bottle-neck points in the movement network within the development (for example, avoids hourglass patterns); and (b) ensures the road network has sufficient capacity for the evacuating population. <p>AO5.2</p> <p>The subdivision layout ensures evacuation routes:</p> <ul style="list-style-type: none"> (a) direct occupants away from rather than towards or through areas with a greater potential bushfire intensity; and (b) minimise the length of route through bushfire prone areas. <p>Refer Figure 5.</p>

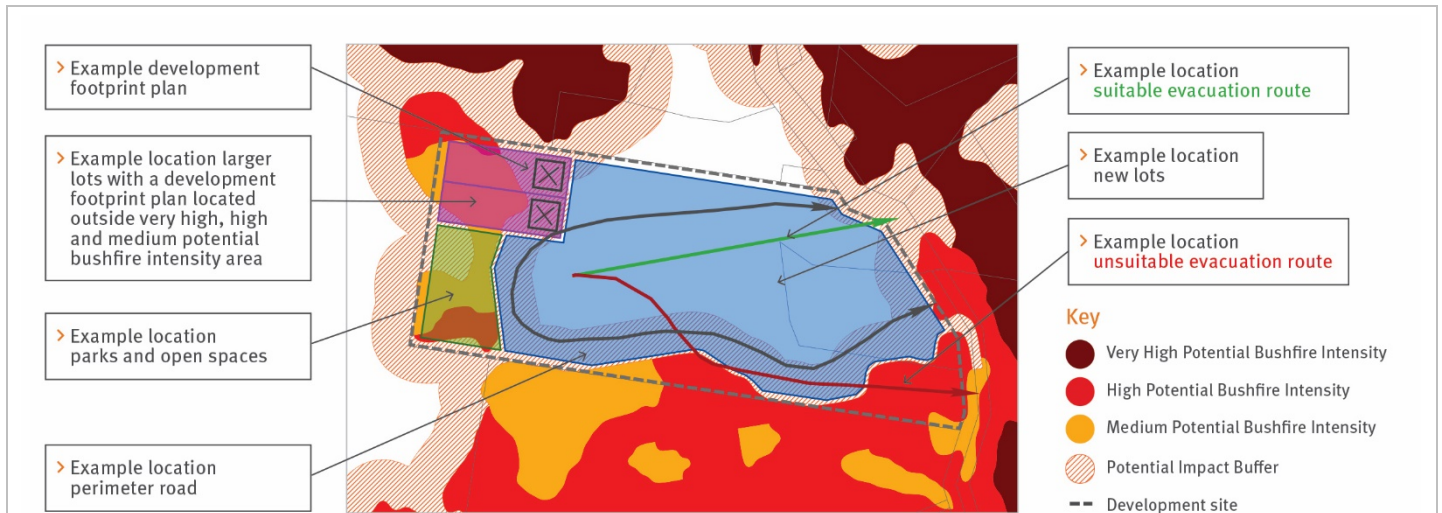


Figure 5 – Subdivision layout and evacuation routes

PO6

The subdivision layout provides adequate buffers between hazardous vegetation and development.

Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment, in accordance with the methodology in the QFES *Bushfire resilient communities* document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.

AO6.1

The subdivision layout results in an asset protection zone being located to create a separation area from adjacent mapped medium, high or very high potential bushfire intensity areas.

AO6.2

The asset protection zone is comprised of:

- (a) parks and open spaces; and/or
- (b) lots greater than 2000 square metres; and/or
- (c) public roads (termed perimeter roads).

Note – Parks and open space may be located within the mapped medium, high and very high potential bushfire intensity areas to create a separation between the development and the balance of the bushfire prone area.

Note – Portions of lots greater than 2000 square metres may be located within the mapped medium, high and very high potential bushfire intensity areas.

Refer Figure 5.

AO6.3

Where the asset protection zone includes lots greater than 2000 square metres a development footprint plan is identified for each lot that is located in accordance with AO1.2.

PO7

Parks or open space provided as part of the asset protection zone do not create additional bushfire prone areas.

Note –The undertaking of a bushfire hazard assessment, in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this performance outcome.

AO7

Where the asset protection zone includes parks or open spaces, they:

- (a) comprise only low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, cultivated gardens and nature strips; or
- (b) are designed to ensure a potential available fuel load is maintained at less than eight tonnes/hectare in aggregate and with a fuel structure that remains discontinuous.

	<p>Note – Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres.</p>
<p>PO8 Perimeter roads are accessible for fire-fighting vehicles, to facilitate emergency access and operational space for fire-fighting, maintenance works and hazard reduction activities.</p>	<p>AO8.1 Where the asset protection zone includes a perimeter road it:</p> <ul style="list-style-type: none"> (a) has a two-lane sealed carriageway clear of hazardous vegetation; and (b) is connected to the wider public road network at both ends and at intervals of no more than 200 metres; and (c) does not include design elements that may impede access for fire-fighting and maintenance for fire-fighting purposes (for example traffic calming involving chicanes). <p>AO8.2 Where the subdivision contains a reticulated water supply, the road network and fire hydrants are designed and installed in accordance with:</p> <ul style="list-style-type: none"> (a) <i>Fire Hydrant and Vehicle Access Guidelines for residential, commercial and industrial lots</i>, Queensland Fire and Emergency Services, 2015, unless otherwise specified by the relevant water entity; and (b) the <i>Road Planning and Design Manual 2nd edition</i>, Department of Transport and Main Roads, 2013.
<p>Section D Reconfiguring a lot (RaL) – where creating additional lots for the purpose of residential development and a reticulated water supply is not provided</p>	
<p>PO9 The subdivision layout provides for perimeter roads or fire trail and working areas that are accessible by the type of fire-fighting vehicles servicing the area, to facilitate emergency access and operational space for fire-fighting, maintenance works and hazard reduction activities.</p>	<p>AO9 The subdivision layout includes:</p> <ul style="list-style-type: none"> (a) a fire trail and working area designed and constructed in accordance with the design parameters in Table 6 that separates the residential lot or development footprint plan from adjacent mapped medium, high or very high potential bushfire intensity areas; or (b) a perimeter road designed and constructed in accordance with AO8.1. <p>Refer Figure 6.</p>

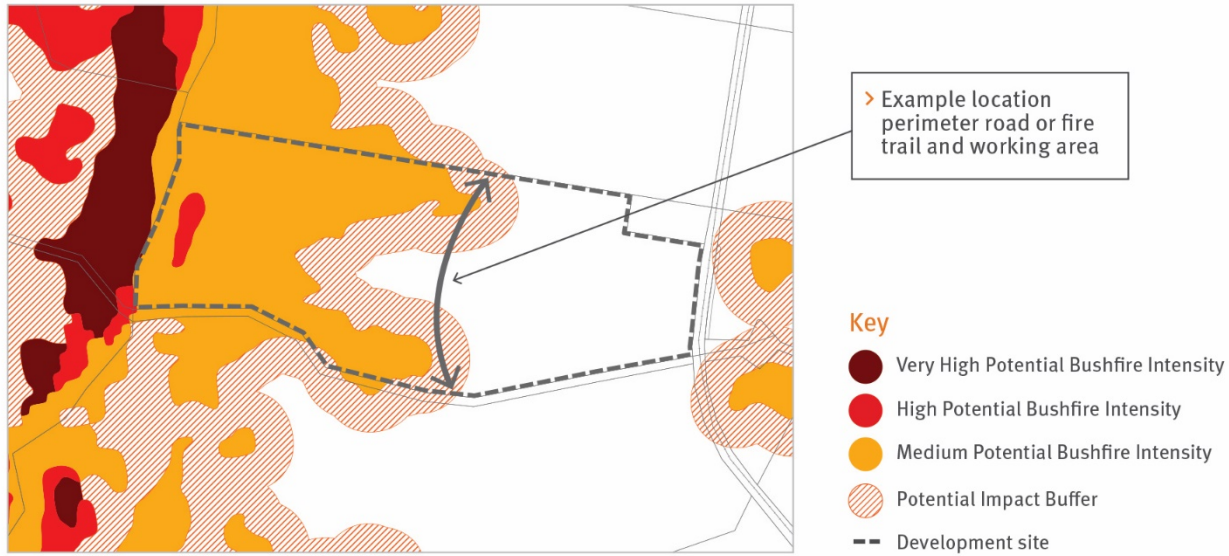


Figure 6 – Siting of fire trail and working area

Section E
Material change of use

PO10

Site layout achieve an acceptable or tolerable risk to people. Landscape or open space provided as part of the development:

- (a) acts as a buffer between hazardous vegetation and development; and
- (b) does not create additional bushfire prone areas.

Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment in accordance with the methodology in the QFES *Bushfire resilient communities* document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.

AO10.1

Site layout places the landscape and open spaces within the site between premises and adjacent mapped medium, high or very high potential bushfire intensity areas.

Refer Figure 7.

AO10.2

This landscaping and open space comprises protective landscape treatments that:

- (a) comprise only low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses and cultivated gardens; or
- (b) are designed to ensure a potential available fuel load is maintained at less than 8 tonnes/hectare in aggregate and that fuel structure remains discontinuous.

Note – Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres.

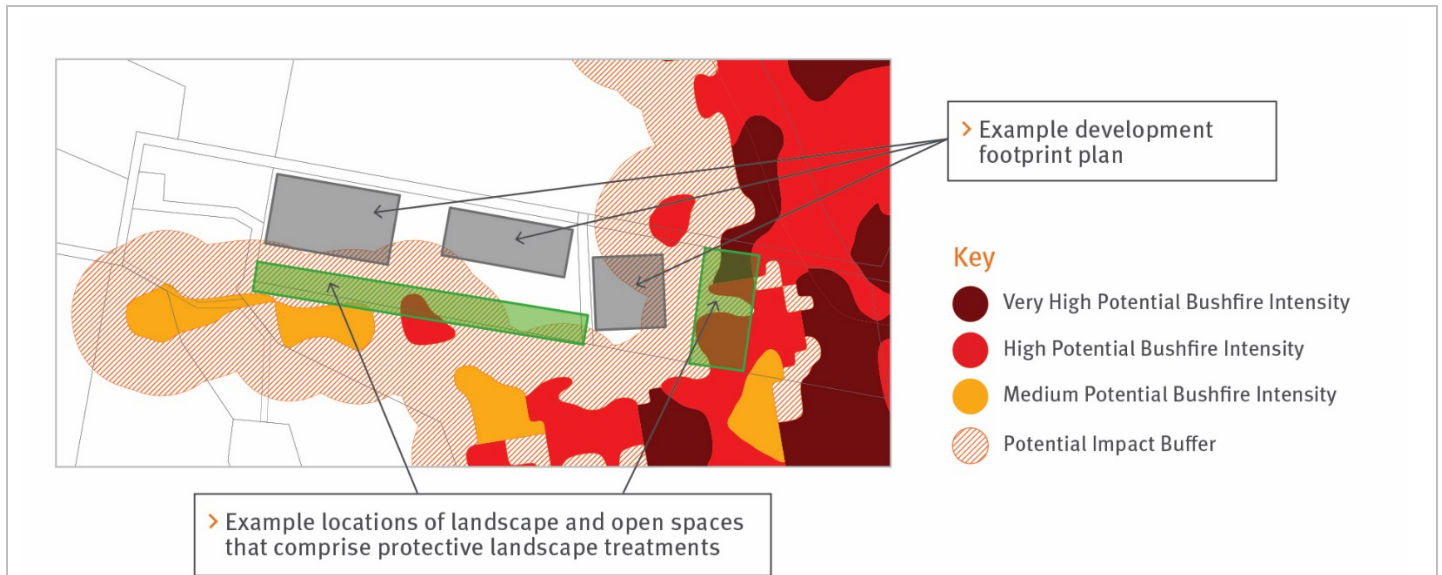


Figure 7 – Siting of protective landscape treatments

<p>PO11 The development establishes evacuation areas, to achieve an acceptable or tolerable risk to people.</p>	<p>AO11 If in an isolated location, development establishes direct access to a safe assembly/evacuation area. Note – Guidance on identifying safe evacuation areas is contained in the QFES <i>Bushfire resilient communities</i> document.</p>
<p>PO12 If on a lot of over 2000m², where involving a new premises or an existing premises with an increase in development footprint, development:</p> <ul style="list-style-type: none"> (a) locates occupied areas as close as possible to property entrances to facilitate safe evacuation during a bushfire event; and (b) ensures vehicular access is located and designed to allow safe evacuation of the site by occupants and maintain access by emergency services under critical event conditions. 	<p>AO12 No acceptable outcome is prescribed.</p>
<p>PO13 Development is located within a reticulated water supply area or includes a dedicated static water supply that is available solely for fire-fighting purposes and can be accessed by fire-fighting vehicles. Note – Swimming pools, farm ponds and dams are not considered reliable sources of static water supply in Queensland due to regular drought events. [Note for Local Government – Information on how to provide an appropriate static water supply, may form a condition of a development approval. For further information on preferred solutions refer to the QFES <i>Bushfire resilient communities</i> document.]</p>	<p>AO13 No acceptable outcome is prescribed.</p>
<p>PO14 Vulnerable uses listed in Table 7 are not established or intensified within a bushfire prone area unless:</p> <ul style="list-style-type: none"> (a) there is an overriding need in the public interest for the new or expanded service the development provides; and (b) there are no other suitable alternative locations within the required catchment; and 	<p>AO14 No acceptable outcome is prescribed.</p>

<p>(c) site planning can appropriately mitigate the risk (for example, siting ovals for an educational establishment between the hazardous vegetation and structures.</p> <p>Note – The preparation of a bushfire management plan in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this performance outcome</p>	
<p>PO15</p> <p>Community infrastructure providing essential services listed in Table 7 are not established within a bushfire prone area unless:</p> <p>(a) there is an overriding need in the public interest for the new or expanded service the development provides (for example, there are no other suitable alternative locations that can deliver the required level of service or meet emergency service response times during and immediately after a bushfire event); and</p> <p>(b) the infrastructure can function effectively during and immediately after a bushfire event.</p> <p>Note – The preparation of a bushfire management plan in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this performance outcome</p>	<p>AO15</p> <p>No acceptable outcome is prescribed.</p>
<p>PO16</p> <p>Development avoids or mitigates the risks to public safety and the environment from the manufacture or storage of materials listed in Table 7 that are hazardous in the context of bushfire to an acceptable or tolerable level.</p> <p>Note – The preparation of a bushfire management plan in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this acceptable outcome.</p> <p>Editor’s note – In addition to the requirements of this code the <i>Work Health and Safety Act 2011</i> and associated Regulation and Guidelines, the <i>Environmental Protection Act 1994</i> and the relevant building assessment provisions under the <i>Building Act 1975</i> contain requirements for the manufacture and storage of hazardous substances. Information is provided by Business Queensland on the requirements for storing and transporting hazardous chemicals, available at: www.business.qld.gov.au/running-business/protecting-business/risk-management/hazardous-chemicals/storing-transporting.</p>	<p>AO16</p> <p>No acceptable outcome is prescribed.</p>
<p>Section F</p> <p>Where involving an asset protection zone</p>	
<p>PO17</p> <p>Asset protection zones are designed and managed to ensure they do not increase the potential for bushfire hazard.</p> <p>Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this performance outcome.</p>	<p>AO17.1</p> <p>Landscaping treatments within any asset protection zone comprise only low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks.</p> <p>Note – Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres.</p> <p>OR</p> <p>AO17.2</p> <p>Landscaping management within any asset protection zone maintains a:</p>

	<p>(a) potential available fuel load which is less than eight tonnes/hectare in aggregate; and</p> <p>(b) fuel structure which is discontinuous.</p> <p>Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this acceptable outcome.</p>
<p>Section G Where planning provisions or conditions of approval require revegetation or rehabilitation</p>	
<p>PO18</p> <p>Revegetation or rehabilitation areas are designed and managed to ensure they do not result in an unacceptable level of risk or an increase in bushfire intensity level.</p> <p>Note – The undertaking of a bushfire hazard assessment in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this performance outcome.</p>	<p>AO18.1</p> <p>Required revegetation or rehabilitation:</p> <p>(a) is located outside of any asset protection zone; or</p> <p>(b) maintains a potential available fuel load which is less than eight tonnes/hectare in aggregate and fuel structure which is discontinuous.</p> <p>Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with acceptable outcome (b).</p> <p>AO18.2</p> <p>Revegetation or rehabilitation of areas located within mapped medium, high or very high potential bushfire intensity areas, revegetate and rehabilitate in a manner that maintains or reduces the existing fuel load.</p> <p>OR</p> <p>Revegetation or rehabilitation of areas located within the mapped potential impact buffer area, revegetate and rehabilitate in a manner that maintains or reduces the existing fuel load.</p> <p>Note – The preparation of a vegetation management plan undertaken in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this acceptable outcome.</p>

Mapped hazard category (predominant potential fireline intensity of hazardous vegetation adjacent to development)	Position on slope of the hazardous vegetation relative to lot boundary or development footprint plan	Acceptable asset protection zone width between hazardous vegetation and the lot boundary or development footprint plan
Very high potential bushfire intensity: + 40,000 kW/m ²	Upslope ¹⁸	<xx> metres
	Downslope ¹⁹ – Flat ²⁰	<xx> metres
	Downslope – Moderate	<xx> metres
	Downslope – Steep	<xx> metres
High potential bushfire intensity: 20,000–40,000 kW/m ²	Upslope	<xx> metres
	Downslope – Flat	<xx> metres
	Downslope – Moderate	<xx> metres
	Downslope – Steep	<xx> metres
Medium potential bushfire intensity: 4,000–20,000 kW/m ²	Upslope	<xx> metres
	Downslope – Flat	<xx> metres
	Downslope – Moderate	<xx> metres
	Downslope – Steep	<xx> metres

Table 5 – Default separation distances

[Note for Local Government – This table identifies acceptable default separation distances that are designed for the circumstances of each local government area. This table may be included where the local government seeks to provide a quantifiable acceptable outcome for applicants that removes the need to determine radiant heat flux levels. The table is a template only – this table can be developed upon request to the QFES.]

Parameter	Provisions
Width	<p>Contains a width of at least 20 metres including:</p> <ol style="list-style-type: none"> 1. A trafficable area (cleared and formed): <ol style="list-style-type: none"> a. with a minimum width of 4 metres that can accommodate a rural firefighting vehicle b. with no less than 4.8 metres vertical clearance from canopy vegetation c. with no adjacent inhibiting embankments or retaining walls 2. A working area each side of the trafficable area: <ol style="list-style-type: none"> a. with a minimum width of 3 metres each side b. cleared of all flammable vegetation greater than 10 centimetres in height 3. The balance (i.e. 10 metre width) managed vegetation area: <ol style="list-style-type: none"> a. sited to separate the trafficable area from adjacent mapped medium, high or very high potential bushfire intensity areas managed vegetation b. comprising managed vegetation clear of major surface hazards.
Access	<p>Access is granted in favour of the local government and Queensland Fire and Emergency Services</p> <p>Note – This access is commonly granted in the form of an easement that is to be maintained by the grantor.</p>
Egress	Contains trafficable vehicle routes in to low hazard areas, every 200 metres

Table 6 – Fire trail and working area design parameters

¹⁸ Upslope: Hazardous vegetation is upslope from building envelope.

¹⁹ Downslope: Hazardous vegetation is downslope from building envelope.

²⁰ Flat: 0.0–4.9 deg. Moderate slope: 5.0–9.9 deg. Steep 10+ deg.

Group	Uses
Vulnerable uses	<i>childcare centre, community care centre, detention facility, educational establishment, hospital, nature-based tourism, relocatable home park, rooming accommodation, residential care facility, resort complex, retirement facility, tourist park</i>
Community infrastructure for essential services	<i>educational establishment, emergency services, hospital</i>
Hazardous materials in the context of bushfire hazard	Hazardous chemicals that are present at the levels or in the quantities that would constitute the use being a hazardous chemical facility Hazardous materials that are present in the quantities identified in the Work Health and Safety Regulation, schedule 15

Table 7 – Vulnerable uses, community infrastructure for essential services and materials that are hazardous in the context of bushfire hazard

5.3 Example revegetation/rehabilitation provisions

These provisions would be contained in the code requiring the revegetation/rehabilitation – a biodiversity or waterway corridor code for example.

Performance outcomes (PO)	Acceptable outcomes (AO)
Bushfire hazard considerations	
<p>PO1 Revegetation or rehabilitation areas are designed and managed to ensure the area does not have the potential to become a medium, high or very high potential bushfire intensity area in the future.</p> <p>Note – The undertaking of a bushfire hazard assessment in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this performance outcome.</p>	<p>AO1.1 Revegetation or rehabilitation areas:</p> <ul style="list-style-type: none"> (a) contain patches of less than one hectare of continuous fuel (i.e. surrounded by either no fuel or non-continuous fuel) and are further than 100 metres from the interface with mapped medium, high or very high potential bushfire intensity patches greater than two hectares in size; and (b) contain corridors of continuous fuel less than 50 metres in width; and (c) contain isolated patches of continuous fuel, less than 0.5 hectare. <p>Note – Steps 1, 2, and 4 in Section 4.2.6 of the QFES <i>Bushfire resilient communities</i> document provide further detailed guidance regarding the patch and corridor methodology that has been adapted for this AO to ensure revegetation or rehabilitation in this manner does not create an additional area that would meet the criteria of being a bushfire prone area in the future if assessed in accordance with the methodology used to generate the SPP IMS mapping.</p> <p>AO1.2 Where the dimensions, configuration and location of revegetation or rehabilitation areas does not comply with AO1.1, the revegetation or rehabilitation areas are designed and managed to achieve and maintain:</p> <ul style="list-style-type: none"> (a) a potential available fuel load which is less than 8 tonnes/hectare in aggregate; and (b) fuel structure which is discontinuous. <p>Note – The preparation of a vegetation management plan undertaken in accordance with the methodology in the QFES <i>Bushfire resilient communities</i> document may assist in demonstrating compliance with this acceptable outcome.</p>

6.0 Supporting information

Priority resources

Queensland Fire and Emergency Services. (2019). ***Bushfire Resilient Communities***.

Queensland Fire and Emergency Services (2017). *Queensland Emergency Risk Management Framework: Risk Assessment Process Handbook*.

Standards Australia, 2018 AS/NZS ISO 31000-2018 Risk management— Principles and guidelines.

Other useful resources

Australian Emergency Management Institute. (2015). *National Emergency Risk Assessment Guidelines*. Canberra: Australian Government Attorney-General's Department.

Australian Institute for Disaster Resilience (2015). *National emergency risk assessment guidelines* www.aidr.org.au/media/1489/handbook-10-national-emergency-risk-assessment-guidelines.pdf

Bureau of Meteorology (2016a). *Australian climate variability and change – Time series graphs*. Bureau of Blanchi, R., Leonard, J., Haynes, K., Opie, K., James, M., Kilinc, M., de Oliveria, F.D. & van den Honert, R. (2012). *Life and house loss database description and analysis: Final report*. Bushfire CRC report to the Attorney-General's Department. CSIRO.

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Council of Australian Governments (2011). *National strategy for disaster resilience*, COAG. Canberra www.ag.gov.au/EmergencyManagement/Documents/NationalStrategyforDisasterResilience.PDF.

Department of Infrastructure, Local Government and Planning, *Guidance for drafting a local planning scheme*, available at: <https://dsdmipprd.blob.core.windows.net/general/guidance-for-drafting-a-local-planning-scheme.pdf>

Department of Transport and Main Roads (2013). *Road Planning Design Manual 2nd edition*, available at: <https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-planning-and-design-manual-2nd-edition.aspx> (accessed on 14/6/18).

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Geoscience Australia (2007). *Natural Hazards in Australia: Identifying Risk Analysis Requirements*. Australian Government, available at: <https://d28rz98at9flks.cloudfront.net/65444/65444.pdf>

Leonard, J. & Blanchi, R. (2012). *Queensland bushfire risk planning project*. CSIRO.

Leonard, J. & Opie, K. (2017). *Estimating the potential bushfire hazard of vegetation patches and corridors*. CSIRO.

Leonard, J. et al. (2014). *A new methodology for statewide mapping of bushfire prone areas in Queensland*. CSIRO.

Middlemann, M.H. (2007). (ed.) *Natural hazards in Australia: Identifying risk analysis requirements*. Geoscience Australia, Canberra.

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